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09/886,942(Modified) PTO/SB/08A-B (10-96)  
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Substitute for form 1449A-B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)		Complete if Known	
		Application Number	09/886,942
		Filing Date	June 21, 2001
		First Named Inventor	Juha Punnonen
		Group Art Unit	Unassigned 1636
		Examiner Name	Unassigned Leffers
Attorney Docket Number	02-031910US		

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, lines, Where Relevant Passages or Relevant Figures Appeal
		Number	Kind Code (if known)			
AJ	AA	5,512,463		Stemmer	04-30-1996	
	AB	5,514,588		Varadaraj	05-07-1996	
	AC	5,605,793		Stemmer	02-25-1997	
	AD	5,763,239		Short et al.	06-09-1998	
	AE	5,789,228		Lam et al.	08-04-1998	
	AF	5,811,238		Stemmer et al.	09-22-1998	
	AG	5,814,473		Warren et al.	09-29-1998	
	AH	5,824,469		Horwitz et al.	10-20-1998	
	AI	5,830,696		Short	11-03-1998	
	AJ	5,830,721		Stemmer et al.	11-03-1998	
	AK	5,834,252		Stemmer et al.	11-10-1998	
	AL	5,837,458		Minushull et al.	11-17-1998	
	AM	5,866,363		Pieczenik	02-02-1999	
	AN	5,876,997		Kretz	03-02-1999	
	AO	5,925,749		Mathur, et al.	07-20-1999	
	AP	5,928,905		Stemmer, et al.	07-27-1999	
	AQ	5,939,250		Short, Jay M.	08-17-1999	
	AR	5,939,300		Robertson, et al.	08-17-1999	
	AS	5,942,430		Robertson, et al.	08-24-1999	
	AT	5,948,666		Callen, et al.	09-07-1999	
	AU	5,958,672		Short, Jay M.	09-28-1999	
	AV	5,958,751		Murphy, et al.	09-28-1999	
	AW	5,962,258		Mathur, et al.	10-05-1999	
	AX	5,962,283		Warren et al.	10-05-1999	
	AY	5,965,408		Short, Jay M.	10-12-1999	
↓	AZ	5,985,646		Murphy, et al.	11-16-1999	
AJ	BA	6,001,574		Short et al.	12-14-1999	

Examiner Signature	<i>Donald S. Leffers</i>	Date Considered	1-13-2004
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		Examiner Name	Unassigned Letters
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<i>ABZ</i>	BB	6,004,788		Short	12-21-1999	
	BC	6,030,779		Short	02-29-2000	
	BD	6,054,267		Short	04-25-2000	
	BE	6,057,103		Short	05-02-2000	
	BF	6,096,548		Stemmer	08-01-2000	
	BG	6,117,679		Stemmer	09-12-2000	
	BH	6,132,970		Stemmer	10-17-2000	
	BI	6,165,793		Stemmer	12-26-2000	
	BJ	6,168,919		Short	01-02-2001	
	BK	6,171,820		Short	01-09-2001	
	BL	6,174,673		Short, et al.	01-16-2001	
	BM	6,180,406		Stemmer	01-30-2001	
<i>ABZ</i>	BN	6,238,884		Short et al.	05-29-2001	

FOREIGN PATENT DOCUMENTS								
Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	Number	Kind Code (if known)				
<i>ABZ</i>	BO	WO	97/07205		Novo Nordisk A/S	02-27-1997		
	BP	WO	97/20078		Affymax Technologies	06-05-1997		
	BQ	WO	97/25410		Novo Nordisk A/S	07-17-1997		
	BR	WO	97/35957		Maxygen, Inc.	10-02-1997		
	BS	WO	97/35966		Maxygen, Inc.	10-02-1997		
	BT	WO	97/44361		Recombinant Biocatalysis Inc.	11-27-1997		
	BU	WO	97/48416		Recombinant Biocatalysis, Inc.	12-24-1997		
	BV	WO	97/48717		Recombinant Biocatalysis Inc	12-24-1997		
<i>ABZ</i>	BW	WO	97/48794		Recombinant Biocatalysis Inc	12-24-1997		
<i>ABZ</i>	BX	WO	98/00526		Recombinant	01-08-1998		

Examiner Signature	<i>Gerald J. Heppf</i>	Date Considered	1-13-2004
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<i>APD</i>	BY	WO	98/01581	Biocatalysis Inc		
	BZ	WO	98/13485	Recombinant Biocatalysis Inc	01-15-1998	
	CA	WO	98/13487	Maxygen, Inc.	04-02-1998	
	CB	WO	98/24799	Maxygen, Inc.	04-02-1998	
	CC	WO	98/27230	Diversa Corp.	06-11-1998	
	CD	WO	98/28416	Maxygen, Inc.	06-25-1998	
	CE	WO	98/31837	Novo Nordisk A/S	07-02-1998	
	CF	WO	98/36080	The Dow Chemical Company	07-23-1998	
	CG	WO	98/41622	Novo Nordisk A/S	08-20-1998	
	CH	WO	98/41623	Novo Nordisk A/S	09-24-1998	
	CI	WO	98/41653	Novo Nordisk A/S	09-24-1998	
	CJ	WO	98/42832	California Institute of Technology	10-01-1998	
	CK	WO	98/48034	Diversa Corp.	10-29-1998	
	CL	WO	98/58085	Diversa Corp.	12-23-1998	
	CM	WO	99/07837	Diversa Corp.	02-19-1999	
	CN	WO	99/08539	Diversa Corp.	02-25-1999	
	CO	WO	99/10472	Diversa Corp.	03-04-1999	
	CP	WO	99/10539	Diversa Corp.	03-04-1999	
	CQ	WO	99/19518	Diversa Corp.	04-22-1999	
	CR	EP	0911396A2	Maxygen, Inc.	04-28-1999	
	CS	WO	99/21979	Maxygen, Inc.	05-06-1999	
	CT	EP	0911396A3	Maxygen, Inc.	05-06-1999	
	CU	WO	99/23107	Maxygen, Inc.	05-14-1999	
<i>APD</i>	CV	WO	99/23236	Diversa Corp.	05-14-1999	
<i>APD</i>	CW	WO	99/29902	California Institute of Technology et al.	06-17-1999	

Examiner Signature	<i>Donald J. Hoff</i>	Date Considered	1-13-2004
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			Examiner Name	<del>Unassigned</del> Letters	
			Attorney Docket Number	02-031910US	

<i>AJZ</i>	CX	EP	0934999A1	Maxygen, Inc.	08-11-1999	
	CY	WO	99/41368	Maxygen, Inc.	08-19-1999	
	CZ	WO	99/41369	Maxygen, Inc.	08-19-1999	
	DA	WO	99/41383	Maxygen, Inc.	08-19-1999	
	DB	WO	99/41402	Maxygen, Inc.	08-19-1999	
	DC	WO	99/45154	Diversa Corp.	09-10-1999	
	DD	WO	99/57128	Maxygen, Inc.	11-11-1999	
	DE	WO	99/65927	Maxygen, Inc.	12-23-1999	
	DF	WO	00/42560	Maxygen, Inc.	07-20-2000	
	DG	WO	00/42561	Maxygen, Inc.	07-20-2000	
<i>✓</i>	DH	WO	00/53744	Diversa Corporation	09-14-2000	
<i>AJZ</i>	DI	WO	00/58517	Diversa Corporation	10-05-2000	

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T
<i>AJZ</i>	DJ	Chang, C., et al. (1999) "Evolution of a cytokine using DNA family shuffling." <i>Nature Biotechnology</i> 17:793-797.	
	DK	Christians, F.C. et al., (1999) "Directed evolution of thymidine kinase for AZT phosphorylation using DNA family shuffling." <i>Nature Biotechnology</i> 17:259-264.	
	DL	Coco et al., (2001) "DNA shuffling method for generating highly recombined genes and evolved enzymes" <i>Nature Biotechnology</i> vol. 19 pp. 354-359	
	DM	Crameri et al., (1993) "10(20)-Fold aptamer library amplification without gel purification," <i>Nuc. Acids Res.</i> 21(18):4410.	
	DN	Crameri, A. & Stemmer W.P.C. (1995) "Combinatorial multiple cassette mutagenesis creates all the permutations of mutant and wildtype cassettes." <i>Biotechniques</i> 18:194-195.	
	DO	Crameri, A. et al. (1996) "Improved green fluorescent protein by molecular evolution using DNA shuffling." <i>Nature Biotechnology</i> 14:315-319.	
<i>✓</i>	DP	Crameri, A. et al. (1996) "Construction and evolution of antibody-phage libraries by DNA shuffling." <i>Nature Medicine</i> 2:100-103.	
<i>AJZ</i>	DQ	Crameri, A. et al., (1997) "Molecular evolution of an arsenate detoxification pathway by DNA shuffling." <i>Nature Biotechnology</i> 15:436-438	

Examiner Signature	<i>Donald A. Lepp</i>	Date Considered	1-13-2004
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<i>AZ</i>	DR	Crameri, A. et al., (1998) "DNA shuffling of a family of genes from diverse species accelerates directed evolution." <i>Nature</i> 391:288-291.
	DS	Gates, C.M. et al., (1996) "Affinity selective isolation of ligands from peptide libraries through display on a lac repressor 'headpiece dimer'. <i>Journal of Molecular Biology</i> 255:373-386.
	DT	Minshull, J., Stemmer, W.P.C. (1999) "Protein evolution by molecular breeding." <i>Current Opinion in Chemical Biology</i> 3:284-290.
	DU	Ness, J. et al., (1999) "DNA shuffling of subgenomic sequences of subtilisin." <i>Nature Biotechnology</i> 17:893-896.
	DV	Patten, P.A. et al., (1997) "Application of DNA Shuffling to Pharmaceuticals and Vaccines." <i>Current Opinion in Biotechnology</i> 8:724-733.
	DW	Pelletier, Joelle N., (2001) "A Rachitt for our toolbox" <i>Nature Biotechnology</i> vol. 19, p. 314-315
	DX	Stemmer, W.P.C. (1994) "DNA Shuffling by random fragmentation and reassembly: In vitro recombination for molecular evolution." <i>PNAS</i> 91:10751
	DY	Stemmer, W.P.C. (1994) "Rapid evolution of a protein in vitro by DNA shuffling." <i>Nature</i> 370:389-391.
	DZ	Stemmer, W.P.C. (1995) "The Evolution of Molecular Computation." <i>Science</i> 270:1510
	EA	Stemmer, W.P.C. (1995) "Searching Sequence Space." <i>Bio/Technology</i> 13:549-553.
	EB	Stemmer, W.P.C. (1996) "Sexual PCR and Assembly PCR." In: <i>The Encyclopedia of Molecular Biology</i> . VCH Publishers, New York. pp. 447-457.
<i>V</i>	EC	Stemmer, W.P.C. & Soong, N.W. (1999) "Molecular breeding of viruses for targeting and other clinical properties." <i>Tumor Targeting</i> 4:59-62.
<i>AZ</i>	ED	Zhang, J. et al., (1997) "Directed evolution of an effective fucosidase from a galactosidase by DNA shuffling and screening." <i>Proceedings of the National Academy of Sciences, USA</i> 94:4504-4509.

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